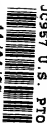


11/24/00



JG957 U.S. PTO

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UTILITY PATENT APPLICATION TRANSMITTAL

Only for new nonprovisional applications under 37 C.F.R. § 1.53(b)

Attorney Docket No.

First Inventor or Application Identifier

Title

Express Mail Label No.

APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents

1. ☒ Fee Transmittal Form (e.g., PTO/SB/17)

(Submit an original and a duplicate for fee processing)

2. ☒ Specification [Total Pages 16]

(preferred arrangement set forth below)

- Descriptive title of the invention;
- Cross References to Related Applications
- Statement Regarding Fed sponsored R & D
- Reference to Microfiche Appendix
- Background of the invention
- Brief Summary of the Invention
- Brief Description of the Drawings (if filed)
- Detailed Description
- Claim(s)
- Abstract of the Disclosure

3. ☒ Drawing(s) (35 U.S.C. 113) [Total Sheets 2]

4. Oath or Declaration [Total Pages 2]

a. ☒ Newly executed (original or copy)b. ☐ Copy from a prior application (37 C.F.R. § 1.63(d))

(for continuation/divisional with Box 16 completed)

i. ☐ DELETION OF INVENTOR(S)

Signed statement: attached deleting

inventor(s) named in the prior application,

see 37 C.F.R. §§ 1.63(d)(2) and 1.33(b).

NOTE FOR ITEMS 1 & 3: IN ORDER TO BE ENTITLED TO PAY SMALL ENTITY

FEES, A SMALL ENTITY STATEMENT IS REQUIRED (37 C.F.R. § 1.29), EXCEPT

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16. If a CONTINUING APPLICATION, check appropriate box, and supply the requisite information below and in a preliminary amendment:

☐ Continuation ☐ Divisional ☐ Continuation-in-part (CIP)

Prior application information: Examiner

Group / Art Unit

For CONTINUATION or DIVISIONAL APPS only: The entire disclosure of the prior application, from which an oath or declaration is supplied

under Box 4b, is considered a part of the disclosure of the accompanying continuation or divisional application and is hereby incorporated by

reference. The Incorporation can only be relied upon when a portion has been inadvertently omitted from the submitted application parts.

17. CORRESPONDENCE ADDRESS

☐ Customer Number or Bar Code Label

(insert Customer No. or Attach bar code label here)

or ☐ Correspondence address below

Name	Mohamed Khaled Mohamed El Hach		
Address	32 Tayemem Street - Nassr City		
City	Cairo	State	C
Country	Egypt	Telephone	+202 4013478
		Fax	+202 4021012

Name (Print/Type) Mohamed Khaled Mohamed

Registration No. (Attorney/Agent)

Signature *M K El Hach*

Date 15/11/2000

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 010272/60
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 See 37 C.F.R. §§ 1.27 and 1.28

TOTAL AMOUNT OF PAYMENT (\$) **345**

Complete if Known

Application Number	
Filing Date	
First Named Inventor	Mohamed Khaleel Mohamed
Examiner Name	
Group / Art Unit	
Attorney Docket No.	

METHOD OF PAYMENT (check one)

1. ☐ The Commissioner is hereby authorized to charge indicated fees and credit any overpayments to:

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2. ☐ Payment Enclosed:

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FEE CALCULATION

1. BASIC FILING FEE

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description	Fee Paid
101 690	201 345	Utility filing fee	345
106 310	206 155	Design filing fee	
107 480	207 240	Plant filing fee	
108 690	208 345	Reissue filing fee	
114 150	214 75	Provisional filing fee	

SUBTOTAL (1) (\$) **345**

2. EXTRA CLAIM FEES

Total Claims	Extra Claims	Fee from below	Fee Paid
102 71	202 39	X	
103 150	203 78	X	
104 260	204 150		
105 370	205 225		
106 480	206 300		
107 590	207 375		
108 700	208 450		
109 810	209 525		
110 920	210 600		

**or number previously paid, if greater; For Reissues, see below

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description	Fee Paid
102 71	202 39	Claims in excess of 20	
103 150	203 78	Insignificant claims in excess of 3	
104 260	204 150	Multiple dependent claim, if not paid	
105 370	205 225	** Reissue independent claims over original patent	
106 480	206 300	** Reissue claims in excess of 20 and over original patent	

SUBTOTAL (2) (\$) **0**

FEE CALCULATION (continued)

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description	Fee Paid
105 130	205 65	Surcharge - late filing fee or oath	
127 50	227 25	Surcharge - late provisional filing fee or cover sheet	
139 130	139 130	Non-English specification	
147 2,520	147 2,520	For filing a request for reexamination	
112 920*	112 920*	Requesting publication of SIR prior to Examiner action	
113 1,840*	113 1,840*	Requesting publication of SIR after Examiner action	
115 110	215 55	Extension for reply within first month	
116 380	216 190	Extension for reply within second month	
117 870	217 435	Extension for reply within third month	
118 1,360	218 680	Extension for reply within fourth month	
128 1,850	228 925	Extension for reply within fifth month	
119 300	219 150	Notice of Appeal	
120 300	220 150	Filing a brief in support of an appeal	
121 260	221 130	Request for oral hearing	
138 1,510	138 1,510	Petition to institute a public use proceeding	
140 110	240 55	Petition to revive - unavoidable	
141 1,210	241 605	Petition to revive - unintentional	
142 1,210	242 605	Utility issue fee (or reissue)	
143 430	243 215	Design issue fee	
144 580	244 290	Plant issue fee	
122 130	122 130	Petitions to the Commissioner	
123 50	123 50	Petitions related to provisional applications	
126 240	126 240	Submission of Information Disclosure Sheet	
551 40	551 40	Recording each patent assignment per property (times number of properties)	
146 690	246 345	Filing a submission after final rejection (** 37 CFR § 1.129(a))	
149 690	249 345	For each additional invention to be examined (37 CFR § 1.129(b))	
Other fee (specify) _____			
Other fee (specify) _____			
SUBTOTAL (3) (\$) 0			

* Reduced by Basic Filing Fee Paid

SUBMITTED BY

Name (Print/Type)	Mohamed Khaleel Mohamed	Registration No. (Attorney/Agent)	Complete if applicable
Signature	<i>Mohamed Khaleel Mohamed</i>	Telephone	+202 401 3478
		Date	12/11/2000

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STATEMENT CLAIMING SMALL ENTITY STATUS
(37 CFR 1.9(f) & 1.27(b))--INDEPENDENT INVENTOR

Docket Number (Optional)

Applicant, Patentee, or identifier: Mohamed Khedid Mohamed El Hater

Application or Patent No.: _____

Filed or Issued: _____

Title: A detector of living tissue strength & Electrical Resistance & Activity

As a below named inventor, I hereby state that I qualify as an independent inventor as defined in 37 CFR 1.9(c) for purposes of paying reduced fees to the Patent and Trademark Office described in:

- ☐ the specification filed herewith with title as listed above.
☐ the application identified above.
☒ the patent identified above.

I have not assigned, granted, conveyed, or licensed, and am under no obligation under contract or law to assign, grant, convey, or license, any rights in the invention to any person who would not qualify as an independent inventor under 37 CFR 1.9(c) if that person had made the invention, or to any concern which would not qualify as a small business concern under 37 CFR 1.9(d) or a nonprofit organization under 37 CFR 1.9(e).

Each person, concern, or organization to which I have assigned, granted, conveyed, or licensed or am under an obligation under contract or law to assign, grant, convey, or license any rights in the invention is listed below:

- ☒ No such person, concern, or organization exists.
☐ Each such person, concern, or organization is listed below.

Separate statements are required from each named person, concern, or organization having rights to the invention stating their status as small entities. (37 CFR 1.27)

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b))

NAME OF INVENTOR

NAME OF INVENTOR

NAME OF INVENTOR

Signature of inventor

Signature of inventor

Signature of inventor

Date

Date

Date

A DETECTOR OF LIVING TISSUE

STRENGTH & ELECTRICAL

RESISTANCE & ACTIVITY .

Dr ,Mohamed Khaled Mohamed El Hatw(M.D.) Egyptian.

52 Tayaran street Nasr City ,Cairo ,Egypt.

CROSS REFERENCE TO RELATED

APPLICANT&CLINICAL RESEARCH.

• **“Monitor of living tissue strength & electrical resistance & activity”**

Egyptian patent office filed on 22-11-1999 No 1492 .11.1999

• Applicant :Dr. Mohamed Khaled Mohamed El Hatw.

BACK GROUND OF THE INVENTION

The old art.

Tissue biopsy is essential for many studies including histopathological , Immunohistological & histochemical studies .

Biopsy can be done by a biopsy needle with a sharp edge to cut the sample & carry it out side the body .In the needle biopsy metal sheath passes an internal metal needle to allow piercing of the overlying tissues .

Defect in the old art .

There is no sure sign that the tip of the needle has arrived to the target tissue this depends partially on the accuracy of the imaging technique & the experience of the operator ,there is also a delay in the diagnostic results .

It is not uncommon that valuable days are lost to receive a pathological report of failure to take the biopsy from the target tissue.

BREIF SUMMARY OF THE INVENTION

This apparatus is used during needle biopsy where it is introduced in the needle biopsy sheath instead of the needle to observe ,measure or record the resistance of the tissues to piercing ,its resistance to passage of electrical current .It also records the electrical activity of the tissue (if any) .These three functions together can help in identification of the nature of the tissue during needle biopsy before the actual cutting of the tissue as well as prediction of the nature of its pathology .

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING

Figure 1 The sensor: *The tip of the sensor (1) An electrical isolator (2) The base of the tip of the sensor (3) two side wings (4) metal blade (5) electrical resistance (6) A spiral coil (7) The body of the sensor (8) The base of the sensor (9) The cable : (10) The monitor : Outlet (B) on the base of the monitor (9) The monitor auditory , visual ,electrical registering unit .(11). The monitor auditory , visual ,electrical registering unit .(12). The monitor registering unit .(13).The electrical switch (14).A suitable electric source (15)*

Figure 2 : *the sensor with the sheath passing through the skin (1), the subcutaneous tissue (2) ,the muscles (3) ,the perinephric fat (4) The renal capsule (5) the renal cortex (6) & the renal medulla (7).*

Figure 3a : *a diagrammatic presentation of the physical resistance showing higher resistance in the skin (1) & the renal capsule (2).*

3b : *a diagrammatic presentation of the electrical resistance showing higher resistance in perinephric fat(4).*

3c: *a diagrammatic presentation of the electrical activity showing higher activity in the muscles (3) .Electrical activity of the renal cortex (6) which is variable in different glomerular diseases is also expected .*

DETAILED DESCRIPTION OF

THE INVENTION .

1-Theoretical background.

The living tissues differ in its consistency ,type & density of its cells ,connecting tissues & vascular supply . this variation makes tissues differ in their resistance to passage of a foreign body & resistance to passage of the electrical current . Some of the tissues as the heart & the brain have an evident electrical activity that can be detected from the surface of the skin. Other tissues have less evident electrical activity that can not be detected unless the detector reaches the target tissue.

The idea of this apparatus depends on studying these three characters during taking the biopsy. This will help to ensure arrival of the needle to the target tissue & predict any pathological changes .

2- The structure of the apparatus .

A -The sensor.

* The shape ,the length & the diameter of the sensor is identical to the internal needle of the renal biopsy needle .This similarity allows its replacement after doing the target function.

* *The tip of the sensor (1)* is pointed and connected to the terminal (C) by an isolated wire .that passes in the sensor .

* *An electrical isolator (2)* that isolates the tip of the sensor (1)from the base of the tip of the sensor (3).

* *The base of the tip of the sensor (3)* is metal & is able to move vertically together with the tip of the sensor (1) & the electrical isolator (2) .It has *two side wings (4)* .

The first wing touches a *metal blade (5)* which is attached to the terminal (B) .

The second wing touches a the coil of an *electrical resistance (6)* which is attached to the terminal (A).

* *A spiral coil (7)* It is from a non conducting material & it separates the body the sensor (8) from the base of the tip of the sensor (3).

* *The body of the sensor (8)* is a metal tube attached to the terminal (D)&is isolated from its internal contents (The electrical resistance (10), the metal blade (5) & the base of the tip of the sensor (3)).

* **The base of the sensor (9)** it is formed from a non conducting material similar to the base of the original internal biopsy needle . To it the electrical terminals (A,B,C,D) are attached .

B-The cable

* **A cable (10)** with four isolated wires attach the four terminals of the monitor to the corresponding terminals on the base of the sensor.

C-The monitor.

* A visual , auditory or electrical intensity or voltage detector (Ammeter or voltmeter) with possibility of adding a registering unit on sensitive paper to monitor & record the physical resistance to entry of the sensor in different tissues while applying a constant pressure .

* A visual , auditory or electrical intensity or voltage detector (Ammeter or voltmeter) with possibility of adding a registering unit on sensitive paper to monitor & record the electrical resistance to passage of the electrical current in different tissues .

* The registering unit for the electrical activity of different tissues is similar to that used in the ElectroCardioGagraph (E.C.G.), the Electro EncephaloGraph (E.E.G.) or the ElectroMyoGagraph (E.M.G.) .The prementioned devices magnify the intrinsic electrical activity of the tissues & change it into movements of a hot needle over a heat sensitive paper or alternatively express it on the screen.

D-The electrical circuits .

1- A circuit to study the physical resistance.

- Outlet (A) on the base of the sensor (9).
- The connecting wire in the cable (10) .
- Outlet (A`) on the monitor .
- The monitor auditory , visual ,electrical registering unit .(11).
- The electrical switch (14).
- A suitable electric source (15) that can be tolerated by the body (e.g. not more than 12 Volts)
- Outlet (B) on the monitor .
- The connecting wire in the cable (10) .
- Outlet (B) on the base of the sensor (9).
- A wire passing through the body of the sensor (8) connecting the outlet (B) to the metal blade (5) .
- The metal blade (5) .
- The base of the tip of the sensor (3).
- The electrical resistance (6) .
- A wire connecting the electrical resistance (6) to the outlet (A) on the base of the sensor (9).

With increasing physical resistance to the passage of the sensor the tip of the sensor (1) , the electrical isolator (2) & the base of the tip of the sensor (3) move vertically together to decrease the electrical resistance .This electrical changes can be detected by the monitor .

2- A circuit to study the electrical resistance.

- Outlet (C) on the base of the sensor (9).
- The connecting wire in the cable (10) .
- Outlet (C') on the monitor .
- The monitor auditory , visual ,electrical registering unit ,(12).
- The electrical switch (14).
- A suitable electric source (15)
- Outlet (B') on the monitor .
- The connecting wire in the cable (10) .
- Outlet (B) on the base of the sensor (9).
- A wire passing through the body of the sensor (8) connecting the outlet (B) to the metal blade (5) .
- The metal blade (5) .
- The base of the tip of the sensor (3).
- The living tissue around the tip of the sensor (1)
- A wire connecting the tip of the sensor (1) to the outlet (C) on the base of the sensor (9).

The electrical resistance to passage of the electrical current differ in the living tissue according to its type & the pathological changes that can be detected by the monitor .

3-A circuit to study the electrical activity .

- Outlet (C) on the base of the sensor (9).
- The connecting wire in the cable (10) .

- Outlet (C) on the monitor .
- The monitor registering unit .(13).
- Outlet (D') on the monitor .
- The connecting wire in the cable (10) .
- Outlet (D) on the base of the sensor (9).
- A wire passing through the body of the sensor (8) connecting the outlet (D) to the metal body of the sensor (8) ..
- The metal sheath of the biopsy needle (14) which is touching the metal body of the sensor. [but it is not considered as part of the sensor].
- Different living tissues through which the biopsy needle passes & works as the earth terminal to the registering unit .(13).
- The target living tissue for measuring the electrical activity which is in direct contact with the tip of the sensor (1)
- The tip of the sensor (1)
- A wire connecting the tip of the sensor (1) to the outlet (C) on the base of the sensor (9).
- The outlet (C) on the base of the sensor (9).

E- Computerized analysis unit.

After completing the data derived from studying different types of normal & pathological tissues ,a computer program can be designed to keep these data .

During tissue biopsy data about the anatomical position of the biopsy can be inserted & the computer program will compare the stored data with the patient's data to give instantaneous diagnosis of the anatomical & pathological data of the tissue at the tip of the sensor .

3-How to use the apparatus ?

- 1- The patient is prepared for renal biopsy as usual (positioning ,sterilization , anesthesia & localization of the target tissue or organ by the proper means of imaging).
- 2- Replace the inner needle with a suitable sensor with identical shape & size.
- 3- Switch on the electric switch (14) & apply a constant pressure to push the biopsy needle with the sensor inside in the direction of the target tissue. Observe the monitor reading about the physical & electrical resistance of the tissues while pushing the biopsy needle.
- 4- To verify the nature of the target tissue or the tissue in the way of the needle ,switch off the electric switch (14) & record the intrinsic activity of the tissue surrounding the tip of the sensor (1) .
- 5- To cut the target tissue by the Uro-cut biopsy needle model replace the sensor with the original grooved needle ,move the sheath up to expose the groove the down to cut the tissue with the sharp metal sheath then withdraw the biopsy needle out with the needle & the tissue inside as usual.
- 6- To cut the target tissue by the Mangini biopsy needle remove the sensor ,apply a suction syringe & move the sheath up & down to cut the target tissue .

An expected example during renal biopsy.

1- **Figure 2** : The sensor with the sheath passing through the skin (1), the subcutaneous tissue (2), the muscles (3), the perinephric fat (4) The renal capsule (5) the renal cortex (6) & the renal medulla (7).

2- **Figure 3a** : A diagrammatic presentation of the physical resistance record showing higher resistance in the skin (1) & the renal capsule (2).

Figure 3b : A diagrammatic presentation of the electrical resistance record showing higher resistance in perinephric fat (4).

Figure 3c: A diagrammatic presentation of the electrical activity showing higher activity in the muscles (3). Electrical activity of the renal cortex (6) which is variable in different glomerular diseases is also expected.

4- How to get use of the detector ?

A-Complete the relevant studies .

- * Studies of living tissues & living animals can verify the characters of healthy living tissues .
- * Noting that the apparatus can work through the biopsy needle no non predetermined human invasive studies will be required.
- * Comparison of the detector findings with data derived from different imaging techniques during biopsy & the results of pathological studies& with the growing data of the electrical disturbances of different disorders (e.g. loss of the glomerular negative charges in Nephrotic Syndrome & recently the electrical disturbances in some hepatic disorders) will help to verify the significance of the detector & feed its computerized analysis units.

B-Manufacture.

- * Supply the sensor as a disposable sterile single use product.
- * The cable & the monitor can be manufactured as permanent devices .Alternatively a small electric lamb or ring can be added to the base of the sensor to be used for detection of physical & electrical resistance.

C-Utilization .

- * The sensors will be consumed with the rate of biopsies taken .
- * The monitors ,cables & data analysis units will be consumed with a number parallel to the number of the medical units performing biopsy

Claims

The first item .

1- A detector that can detect ,Monitor & register the resistance of the tissues to piercing ,its resistance to passage of electrical current & the electrical activity of the tissues to help in identification of the nature of the tissue during needle biopsy before the actual cutting of the tissue as well as prediction of the nature of its pathology .

3- A visual , auditory or electrical intensity or voltage detector (Ammeter or voltmeter) with possibility of adding a registering unit on sensitive paper for the physical resistance to entry of the sensor in different tissues while applying a constant pressure ,

4- A visual , auditory or electrical intensity or voltage detector (Ammeter or voltmeter) with possibility of adding a registering unit on sensitive paper for the electrical resistance to passage of the electrical current in different tissues.

5- The registering unit for the electrical activity of different tissues similar to that used in the (E.C.G.), (E.E.G.) or (E.M.G.) .

The second item.

- 1- The sensor of the detector have the same size & shape of the internal needle of the biopsy needle so that it can be used simultaneously during the biopsy taking without the need to introduce through a different orifice.
- 2- The sensor has an inbuilt changeable resistance that changes according to the resistance faced by the needle during introduction in the tissue with a constant speed .
- 3- The sensor has 2 adjacent points of electrical circuit at a fixed distance . The electrical circuit is closed by the living tissues which have different resistance to the electrical current.
- 4- The body of the sensor as passing in the tissue work as an earth electrode (or a separate electrode can be connected to the skin) while the tip of the sensor detect the electrical activity –if any - of target or the in way tissues.

The third item .

- * A Computerized analysis unit to give instantaneous anatomical & pathological diagnostic information of the tissue at the tip of the sensor based on the data derived from the monitor .

ABSTRACT OF THE DISCLOSURE.

This apparatus observes ,measures or records the resistance of the tissues to piercing ,its resistance to passage of electrical current & its electrical activity.

This apparatus is used during needle biopsy to observe ,measure or record these three functions together to help in identification of the nature of the tissue during needle biopsy before the actual cutting of the tissue as well as prediction of the nature of its pathology .

The apparatus is formed of a sensor connected to the monitor by a cable .A data analysis unit can also be added for direct analysis of the patient's data.

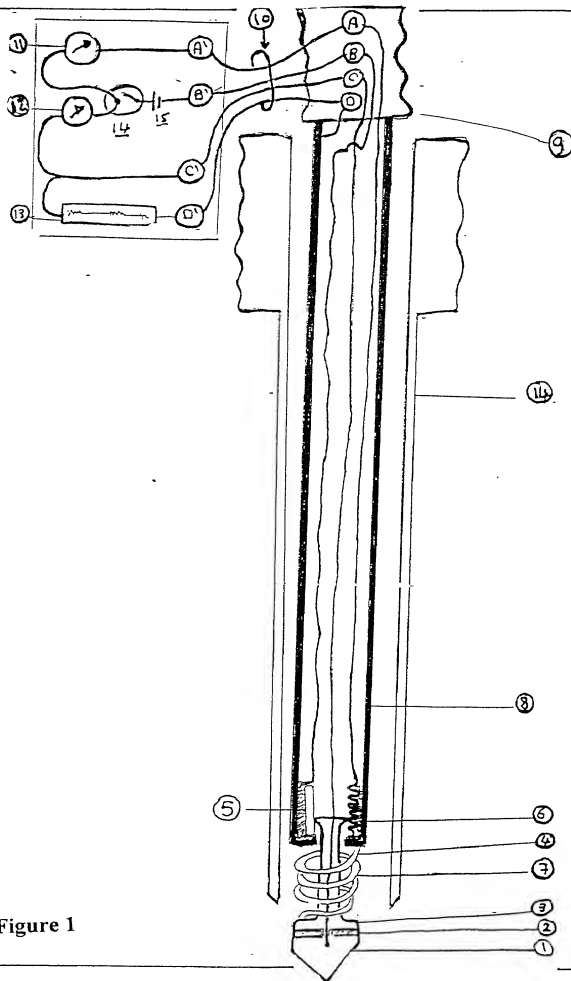


Figure 1

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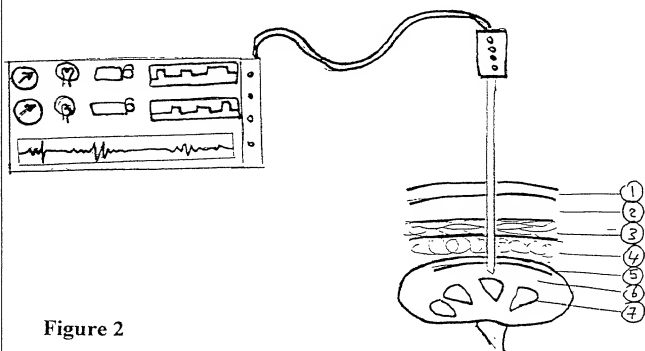


Figure 2

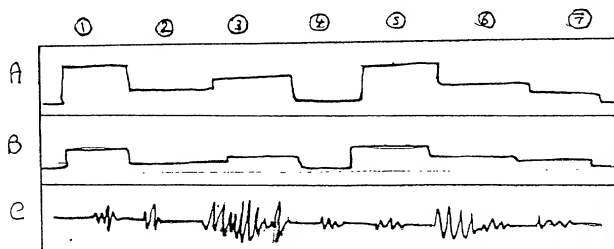


Figure 3

11-24-80

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DECLARATION FOR UTILITY OR DESIGN PATENT APPLICATION (37 CFR 1.63)

☐ Declaration Submitted with Initial Filing

OR

☐ Declaration Submitted after Initial Filing (surcharge (37 CFR 1.16 (e)) required)

Attorney Docket Number

First Named Inventor

COMPLETE IF KNOWN

Application Number

Filing Date

Group Art Unit

Examiner Name

As a below named inventor, I hereby declare that:

My residence, post office address, and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

A detector of living tissue strength & electrical resistance & activity

The specification of which

(Title of the invention)

☒ is attached hereto

OR

☐ was filed on (MM/DD/YYYY) _____ as United States Application Number or PCT International

Application Number _____ and was amended on (MM/DD/YYYY) _____ (if applicable).

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment specifically referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56.

I hereby claim foreign priority benefits under 35 U.S.C. 119(a)-(d) or 365(b) of any foreign application(s) for patent or inventor's certificate, or 365(a) of any PCT international application which designated at least one country other than the United States of America, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or of any PCT international application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application Number(s)	Country	Foreign Filing Date (MM/DD/YYYY)	Priority Not Claimed	Certified Copy Attached?
1492-11-1999	Egypt	22-11-1999	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

☐ Additional foreign application numbers are listed on a supplemental priority data sheet PTO/SB/02B attached hereto.

I hereby claim the benefit under 35 U.S.C. 119(a) of any United States provisional application(s) listed below.

Application Number(s)	Filing Date (MM/DD/YYYY)

☐ Additional provisional application numbers are listed on a supplemental priority data sheet PTO/SB/02B attached hereto.

[Page 1 of 2]

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PTO/SB/01 (12-97)

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Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE
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DECLARATION — Utility or Design Patent Application

I hereby claim the benefit under 35 U.S.C. 120 of any United States application(s), or 365(c) of any PCT international application designating the United States of America, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT international application in the manner provided by the first paragraph of 35 U.S.C. 112, I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.55 which became available between the filing date of the prior application and the national or PCT international filing date of this application.

U.S. Parent Application or PCT Parent Number	Parent Filing Date (MM/DD/YYYY)	Parent Patent Number (if applicable)

☐ Additional U.S. or PCT international application numbers are listed on a supplemental priority data sheet PTO/SB/02B attached hereto.

As a named inventor, I hereby appoint the following registered practitioner(s) to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith:

☐ Customer Number OR ☐ Registered practitioner(s) name(s)/registration number listed below

Name	Registration Number	Name	Registration Number

☐ Additional registered practitioner(s) named on supplemental Registered Practitioner Information sheet PTO/SB/02C attached hereto

Direct all correspondence to: ☐ Customer Number or Bar Code Label OR ☐ Correspondence address below

Name	Mohamed Khalek Mohamed El Hatw		
Address	52 Tayaran Street - Nasr City - Cairo - Egypt		
Address			
City	Cairo	State	
Country	Egypt	Telephone	00202/4013478
		Fax	00202 4021012

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001 and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Name of Sole or First Inventor: ☐ A petition has been filed for this unsigned inventor

Given Name (first and middle if any)	Family Name or Surname
Mohamed Khalek - Mohamed	El Hatw

Inventor's Signature		Date	15/01/2000
Residence: City	Cairo	State	
		Country	Egypt
		Citizenship	Egyptian
Post Office Address			
Post Office Address			
City		State	
		ZIP	
		Country	

☐ Additional inventors are being named on the supplemental Additional Inventor(s) sheet(s) PTO/SB/02A attached hereto